

AMENDMENTS TO THE CLAIMS

1. (Previously Presented) A method for creating a signature of a sampled work in real-time, said method comprising:

receiving a sampled work;

segmenting said sampled work into a plurality of segments, said segments having predetermined segment and hop sizes;

creating a plurality of signatures wherein each of plurality of signatures is a signature of one of said plurality of segments and each of said plurality of signatures includes calculations of a plurality of acoustical features of said one of said plurality of segments selected from a group consisting of loudness, pitch, brightness, bandwidth, spectrum and MFCC coefficients; and

storing said plurality of signatures as a representative signature of said work in a reference database that stores a representative signature for each of a plurality of known works.

2. (Cancelled)

3. (Previously Presented) The method of claim 1, wherein said method is characterized in that said hop size of each of said plurality of signatures of said sampled work is less than said hop size of said plurality of segments of each of said plurality of representative signatures of said plurality of known works.

4. (Previously Presented) The method of claim 1, wherein said act of creating said plurality of signatures of said sampled work compromises calculating segment feature vectors for each plurality of segments of said sampled work.

5. (Cancelled)

6. (Cancelled)

7. (Previously Presented) The method of claim 1, wherein said representative signature of said sampled work comprises said plurality of segments and an identification portion stored in said reference database.

8. (Original) The method of claim 7, wherein said plurality of segments of said sampled work signature comprise a segment size of approximately 0.5 to 3 seconds.

9. (Original) The method of claim 8, wherein said plurality of segments of said sampled work signature comprise a hop size of less than 50% of the segment size.

10. (Original) The method of claim 8, wherein said plurality of segments of said sampled work signature comprise a hop size of approximately 0.1 seconds.

11. (Previously Presented) A method for identifying unknown audio work, said method comprising:

maintaining a reference database storing a plurality of reference signatures of a plurality of known works wherein each of said plurality of reference signatures comprises a plurality of signatures generated from a plurality of segments of a known work each having a segment size and a hop size;

receiving a sampled work;

segmenting said sampled work into a plurality of segments, each of said plurality of said segments having predetermined segment and hop sizes;

creating a plurality of signatures wherein each of signatures is a signature of one of said plurality of segments and each of said plurality of signatures includes calculations of a plurality of acoustical features of said one of said plurality of segments selected from a group consisting of loudness, pitch, brightness, bandwidth, spectrum and MFCC coefficients;

storing said plurality of signatures as a representative signature of said work; and

comparing said representative signature of said sampled work to said plurality of reference signatures of said plurality of known works stored in said reference database to determine whether there is a match.

12. (Previously Presented) The method of claim 11, wherein said method is characterized in that said hop size of said plurality of segments of said sampled work is less than said hop size of said reference signatures.

13. (Previously Presented) The method of claim 11, wherein said act of creating said plurality of signatures of said sampled work comprises calculating segment feature vectors for each plurality of segments of said sampled work.

14. (Previously Presented) The method of claim 13, wherein said act of comparing said representative signature of said sampled work to said plurality of reference signatures comprises measuring the Euclidean distance between said feature vectors and comparing said Euclidean distance to a predetermined threshold.

15. (Cancelled)

16. (Cancelled)

17. (Previously Presented) The method of claim 11, wherein said representative signature comprises said plurality of signatures and an identification portion.

18. (Original) The method of claim 17, wherein said plurality of segments of said sampled work signature comprise a segment size of approximately 0.5 to 3 seconds.

19. (Original) The method of claim 17, wherein said plurality of segments of said sampled work signature comprise a hop size of less than 50% of the segment size.

20. (Original) The method of claim 17, wherein said plurality of segments of said sampled work signature comprise a hop size of approximately 0.1 seconds.

21. (Previously Presented) An apparatus for creating a signature of sampled work in real-time, said apparatus comprising:

means for receiving a sampled work;

means for segmenting said sampled work into a plurality of segments, each of said plurality of segments having predetermined segment and hop sizes;

means for creating a plurality of signatures wherein each of signatures is a signature of one of said plurality of segments and each of said plurality of signatures includes calculations of a plurality of acoustical features of said one of said plurality of

segments selected from a group consisting of loudness, pitch, brightness, bandwidth, spectrum and MFCC coefficients; and

means for storing said plurality of signatures as a representative signature of said sampled work in a reference database that stores a plurality of representative signatures of a plurality of known works.

22. (Cancelled)

23. (Previously Presented) The apparatus of claim 21, wherein said apparatus is characterized in that said hop size of each of said plurality of signatures of said sampled work is less than said hop size of said plurality of segments of each of said plurality of representative signatures of said plurality of known works.

24. (Previously Presented) The apparatus of claim 21, wherein said means for creating said plurality of signatures of said sampled work comprises calculating segment feature vectors for each plurality of segments of said sampled work.

25. (Cancelled)

26. (Previously Presented) The apparatus of claim 21, wherein said representative signature comprises a plurality of signatures and an identification portion stored in said reference database.

27. (Previously Presented) The apparatus of claim 26, wherein each of said plurality of segments of said sampled work signature comprise a segment size of approximately 0.5 to 3 seconds.

28. (Previously Presented) The apparatus of claim 26, wherein each of said plurality of segments of said sampled work signature comprise a hop size of less than 50% of the segment size.

29. (Previously Presented) The apparatus of claim 26, wherein each of said plurality of segments of said sampled work signature comprise a hop size of approximately 0.1 seconds.

Claims 30-34        (Cancelled)

35. (Previously Presented) A program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine to perform a method for creating a signature of a sampled work in real-time, said method comprising:

receiving a sampled work;

segmenting said sampled work into a plurality of segments, each of said plurality of segments having predetermined segment and hop sizes;

creating a plurality of signatures wherein each of signatures is a signature of one of said plurality of segments and each of said plurality of signatures includes calculations of a plurality of acoustical features of said one of said plurality of segments selected from a group consisting of loudness, pitch, brightness, bandwidth, spectrum and MFCC coefficients; and

storing said plurality of signatures as a representative signature of said work in a reference database storing a plurality of reference signatures of a plurality of known works.

36. (Cancelled)

37. (Previously Presented) The method of claim 35, wherein said method characterized in that said hop size of each of said plurality of signatures of said sampled work is less than said hop size of said plurality of segments of each of said plurality of representative signatures of said plurality of known works.

38. (Previously Presented) The method of claim 35, wherein said act of creating said plurality of signatures of said sampled work compromises calculating segment feature vectors for each plurality of segments of said sampled work.

39. (Cancelled)

40. (Cancelled)

41. (Previously Presented) The method of claim 35, wherein said sampled work signature comprises said plurality of signatures and an identification portion.

42. (Original) The method of claim 41, wherein said plurality of segments of said sampled work signature comprise a segment size of approximately 0.5 to 3 seconds.

43. (Original) The method of claim 42, wherein said plurality of segments of said sampled work signature comprise a hop size of less than 50% of the segment size.

44. (Original) The method of claim 42, wherein said plurality of segments of said sampled work signature comprise a hop size of approximately 0.1 seconds.